

I CLAIM:

- 5     1. A method of generating a Semi-Variogram, comprising the steps of:  
             (a) receiving spatial data in a space domain;  
             (b) taking a Fourier Transform of said spatial data, and  
10           (c) generating a Semi-Variogram in response to the taking step.
- 15     2. The method of claim 1, wherein, following the taking step, a frequency domain representation of the spatial data is generated including a DC component or mean of the spatial data, and wherein the generating step (c) comprises the step of:  
             (c1) removing said DC component thereby generating a frequency domain representation of the spatial data with zero mean (FFT).
- 20     3. The method of claim 2, wherein the generating step (c) further comprises the step of:  
             (c2) computing a complex conjugate of said FFT thereby producing FFT\*.
- 25     4. The method of claim 3, wherein the generating step (c) further comprises the step of:  
             (c3) complex multiplying said FFT and said FFT\* thereby producing a complex product.
- 30     5. The method of claim 4, wherein the generating step (c) further comprises the step of:  
             (c4) taking an inverse Fourier Transform of said complex product thereby generating a space domain representation of the complex product (IFFT).

6. The method of claim 5, wherein the generating step (c) further comprises the step of:

(c5) subtracting said IFFT from a zero lag covariance thereby generating said

5 Semi-Variogram.

7. A program storage device adapted for storing instructions, said instructions adapted to be executed by a processor, said instructions when executed by said processor conducting a method comprising the steps of:

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(a) receiving spatial data in a space domain;

(b) taking a Fourier Transform of said spatial data, and

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(c) generating a Semi-Variogram in response to the taking step.

8. The program storage device of claim 7, wherein, following the taking step, a frequency domain representation of the spatial data is generated including a DC

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component or mean of the spatial data, and wherein the generating step (c) comprises the step of:

(c1) removing said DC component thereby generating a frequency domain representation of the spatial data with zero mean (FFT).

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9. The program storage device of claim 8, wherein the generating step (c) further comprises the step of:

(c2) computing a complex conjugate of said FFT thereby producing FFT\*.

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10. The program storage device of claim 9, wherein the generating step (c) further comprises the step of:

5 (c3) complex multiplying said FFT and said FFT\* thereby producing a complex product.

11. The program storage device of claim 10, wherein the generating step (c) further comprises the step of:

10 (c4) taking an inverse Fourier Transform of said complex product thereby generating a space domain representation of the complex product (IFFT).

12. The program storage device of claim 11, wherein the generating step (c) further comprises the step of:

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(c5) subtracting said IFFT from a zero lag covariance thereby generating said Semi-Variogram.

20 13. An apparatus responsive to a set of spatial data in a space domain adapted for generating a Semi-Variogram, comprising:

first means for receiving said spatial data in a space domain;

25 second means for taking a Fourier Transform of said spatial data, and

third means for generating a Semi-Variogram in response to said taking of said Fourier Transform of said spatial data by said second means.

14. The apparatus of claim 13, wherein said second means takes said Fourier Transform  
of said spatial data and, responsive thereto, generates a frequency domain representation  
of said spatial data including a DC component or mean of said spatial data, and wherein  
5       said third means comprises:

means for removing said DC component thereby generating a frequency domain  
representation of the spatial data with zero mean (FFT).

10      15. The apparatus of claim 14, wherein said third means further comprises:

means for computing a complex conjugate of said FFT thereby producing FFT\*.

15      16. The apparatus of claim 15, wherein said third means further comprises:

means for complex multiplying said FFT and said FFT\* thereby producing a complex  
product.

20      17. The apparatus of claim 16, wherein said third means further comprises:

means for taking an inverse Fourier Transform of said complex product thereby  
generating a space domain representation of the complex product (IFFT).

25      18. The apparatus of claim 17, wherein said third means further comprises:

means for subtracting said IFFT from a zero lag covariance thereby generating said  
Semi-Variogram.